in Fig. 6b.

For a larger detector input signal, the resulting increase in amplifier a-c signal will cause Triode B to be cut off by the more negative signal on its grid when its plate goes positive. The increased magnitude of the grid signal will also increase the current flow through Triode A when its plate goes positive. The curves of Fig. 6c illustrate this condition. Thus, the magnitude of the differential voltage will increase as the detector input increases.

If the direction of unbalance in the external input circuit is reversed, the phase of the amplified signal and, therefore, the voltage applied to the grids of V3, is shifted by 180 degrees. The grid of Triode B is driven in phase with its a-c plate voltage and Triode A is driven out of phase with its a-c plate voltage. Thus, the tube current of Triode B is now greater than that of Triode A and the polarity of the differential voltage E3 is reversed as shown in Fig. 6d.

As shown by these curves, the polarity of the differential voltage applied across the output network is determined by the triode which conducts heavily during its "on" time. This, in turn depends upon the phase of the a-c amplifier signal voltage, which is reversed by 180 degrees when the d-c input to the detector changes polarity.

The output network is shunted by two silicon diodes, resulting in a semilogarithmic output response. Full sensitivity is retained in the vicinity of zero output but the meter needle will remain on scale and active regardless of detector input.

Fig. 5 shows the arrangement used to provide stabilization in the electronic converter. Note that the tube current for both half cycles of operation flows through the 2.7K and 5.6K resistors. A unidirectional 120 cycle pulsating voltage is developed across each resistor. Because the 25 microfarad capacitor is effectively a short circuit to 120 cycles, the voltage variations across the 2.7K resistor are applied directly to the 1.5K cathode resistor of V2b. The polarity of this feedback signal is such that it decreases the effect which causes it to increase. That is, the 2.7K resistor voltage is an inverse feedback signal from the converter stage to the last stage of voltage amplification.